Some MATLAB commands on this quiz may produce errors. For those cases, please state that.

1. Given the following array \( a \),

\[
a =
\begin{bmatrix}
3 & 7 & 6 & 5 \\
9 & 4 & 10 & 2 \\
1 & 8 & 3 & 11
\end{bmatrix}
\]

determine the result of each of the following commands.

\[
\begin{align*}
\text{>> } & a(4, 3) \\
\text{>> } & a(2, 3) \\
\text{>> } & a(0, 2) \\
\text{>> } & a(5) \\
\text{>> } & a' \\
\text{>> } & a([2 3], [1 2]) \\
\text{>> } & a([2 2], [1 2]) \\
\text{>> } & a([2 1], [2 1]) \\
\text{>> } & a(3:-1:1, 3:-1:1) \\
\text{>> } & a(:, [2 2]) \\
\text{>> } & a(end, :) \\
\text{>> } & \text{min}(a) \\
\text{>> } & a(,:) \\
\text{>> } & b = a; b(1:3,1:3) = \text{ones}(3); b \\
\text{>> } & b = a; b(:,2:3) = [] ; b \\
\text{>> } & a > 5
\end{align*}
\]
2. Given the following vector \( a \),

\[
a = \\
5 \\
7 \\
3 \\
8 \\
3
\]

determine the result of each of the following commands.

\[
\begin{align*}
\text{>> } a + 1 \\
\text{>> } a(3,1) \\
\text{>> } \text{find}(a == 3) \\
\text{>> } \text{sum}(a > 5) \\
\text{>> } a * a \\
\text{>> } a .* a \\
\text{>> } [a, a] \\
\text{>> } [a; a] \\
\text{>> } [M, k] = \text{max}(a); M, k
\end{align*}
\]

3. Write a MATLAB function called \texttt{myprog.m} that has one input and two outputs. The input is a vector; each of the two outputs are scalars. The first output should be the average of the maximum and minimum values of the input vector. The second output should be the average of the remaining input vector elements. For example:

\[
\begin{align*}
\text{>> } [x, y] = \text{myprog}([4 \ 1 \ 2 \ 9 \ 6]) \\
x &= \\
5 \\
y &= \\
4
\end{align*}
\]

because the average of 1 and 9 is 5, and because the average of 4, 2, and 6 is 4.

Your program should not use a \texttt{for} or \texttt{while} loop and it should not use an \texttt{if} statement.
4. Sketch each graph produced by the following code fragment.

```matlab
>> n = [0 1 3 5 6];
>> x = [2 3 1 0 1];
>> plot(x)
>> plot(n,x)
>> stem(x)
>> stem(n,x)
>> stem(conv(x,x))
>> stem(n,conv(x,x))
```

5. Write a MATLAB code fragment to generate the regular polygon figure illustrated below, including axis labels, and title. Each vertex is 1 unit away from the origin.